

Appl. No. 09/533,421
Amnd. Dated October 11, 2005
Reply to Office Action of July 26, 2005

REMARKS/ARGUMENTS

Reconsideration of the rejections set forth in the Office Action dated July 26, 2005 is respectfully requested. Claims 1, 3-10, and 12-21 have been rejected. Claim 22 has been added. As such, claims 1, 2-10, and 12-22 are currently pending.

New claim 22 recites that communications links include at least one communications link between interface cards and at least one communications link between an interface card and at least one of an active cross-connect unit, a redundant cross-connect unit, an active control unit, or a redundant control unit. Support for this new claim may be found in the Specification, e.g., in FIGs. 1 and 2 and their associated descriptions.

With all due respect to the Examiner, the Applicant takes exception with the following statement on page 17 of the Office Action dated July 26, 2005:

“ ... Since the Applicant is on record indicating that the reference to the phrase ‘communication link’ in these claims is not referring to the system communication links described in the specification but only refers to point-to-point connectors.” [emphasis added]

The Applicant respectfully submits that he has not made any such statement. The statements made in the Amendment filed May 5, 2005 are that a communications link, and not specifically a system communications link, is claimed. Point-to-point connectors are communications links, but the Applicant has not made any statement to the effect that communications links only refer to point-to-point connectors. The only statement the Applicant has made refers to the fact that a communications link, and not a system communications link, is claimed and, further, that a point-to-point connector is a communications link.

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Claim Objections

The Examiner has objected to claims 1, 6, 10, 15, 19, 20, and 21 for having informalities. Specifically, the Examiner has objected to these claims because the use of the phrase "communication link between the plurality of cards" only applies to the class of cards referred to, in the Specification, as low-speed cards and found in the data plane as shown in FIG. 1. On page 2 of the Office Action dated July 26, 2005, the Examiner has argued that "There is no direct support in the specification indicating that data flows directly between the high-speed cards and the high-speed cards are interconnected via a point-to-point connection."

The Applicant fails to understand why the Examiner believes that the phrase "communication link between the plurality of cards" only applies to low-speed cards found in the data plane as shown in FIG. 1. It is noted that FIG. 1 of the instant application shows a data plane 110, subsystems 140, point-to-point connections 150, and point-to-point connectors 160. Cards may be considered to be subsystems, while point-to-point connections and point-to-point connectors are communication links. Traffic is described as being transmitted over the point-to-point connections 150, and is also described as being communicated over point-to-point connectors 160. It is respectfully submitted that there is no teaching in the Specification that point-to-point connectors 160 only connect low-speed cards, or that subsystems 140 are all low-speed cards. The Specification teaches that cards are in communication with each other over communications links, and that standardized data traffic enters the cards (Specification, e.g., page 9 at lines 18-29). Hence, the cards may be either or both low-speed cards and high-speed cards. Accordingly, it is believed that the Examiner's objections to the claims are improper, and the Applicant respectfully requests that the Examiner withdraw his objections to claims 1, 6, 10, 15, 19, 20, and 21.

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Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 1, 3, 6-8, 10, 12, 15-17, 20, and 21 under 35 U.S.C. § 103(a) as being unpatentable over Cantwell et al. (U.S. Patent No. 6,370,55), hereinafter referred to as Cantwell, in view of Barker et al. (U.S. Patent No. 6,363,421), hereinafter referred to as Barker, and further in view of Surprenant et al. (U.S. Patent No. 6,385,194), hereinafter referred to as Surprenant. The Examiner has rejected claims 4 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Cantwell in view of Barker, as applied to claims 1 and 3, and further in view of Jun et al. ("Stand-by Loading Scheme: An Effective Software Retrofit Method for Switching System"), hereinafter referred to as Jun. The Examiner has rejected claims 5 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Cantwell in view of Barker, as applied to claim 1, and further in view of Harris (U.S. Patent No. 5,771,274), hereinafter referred to as Harris. Claims 9 and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Cantwell in view of Barker, as applied to claim 1, and further in view of Badt, Jr. (U.S. Patent Pub. No. 2003/0133417), hereinafter referred to as Badt. Claim 19 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Cantwell in view of Read et al. (U.S. Patent No. 5,781,527), hereinafter referred to as Read, and Badt.

1. *Independent claims 1, 10, 20, and 21, and their respective dependents*

Independent claim 1 requires that a method for controlling the operation of a flexible cross-connect system includes monitoring the operational status of cards and communications links between the cards in the system, determining when the operational status of any of the cards or links between the cards indicates that the card or link between the cards is non-operational, autonomously switching from the non-operational card or link between the cards to an associated redundant card or link between the cards, and determining when the non-operational active card or link between the cards requires maintenance. If it is determined that the non-operational

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active card or link between the cards requires maintenance, the method also includes reporting that maintenance is required.

The Examiner has argued that Cantwell in view of Barker and Surprenant teaches the limitations of claim 1. The Applicant respectfully disagrees with the Examiner, and submit that no combination of the cited art teaches the limitations of claim 1.

The Applicant respectfully submits that claim 1 recites that cards include an active control unit, a redundant control unit, a plurality of interface cards, an active cross-connect unit, and a redundant cross-connect unit. Hence, autonomously switching from a non-operational active card to an associated redundant card includes switching from an active control unit to a redundant control unit, as well as switching from a non-operational active cross-connect unit to a redundant cross-connect unit, when appropriate. No combination of the cited art appears to teach such limitations. As such, claim 1 is believed to be allowable over the cited art for at least these reasons.

The Applicant is confused by the Examiner's rejections of claim 1. Specifically, it is noted that on page 3 of the Office Action dated July 26, 2005, the Examiner has argued that Cantwell discloses monitoring the operational status for each one of a plurality of cards and each one of the communications links between the plurality of cards. However, on page 18 of the Office Action dated July 26, 2005, the Examiner explicitly states that he agrees that Cantwell does not teach monitoring a communication link between cards. This appears to be a contradiction. The Applicant respectfully requests that the Examiner clarify his rejection of claim 1 so that the Applicant may properly respond to the Examiner's rejection.

Page 18 of the Office Action dated July 26, 2005 includes the following statement:

"... a new rejection for claims 1, 6, 10, 15, 19, and 20 has been presented based on the combined teachings of Cantwell, Read and Surprenant. Surprenant specifically teaches monitoring of communication links between cards and support in Surprenant's

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teachings is cited in the rejection of these claims.” [emphasis added]

The Applicant notes that contrary to the Examiner’s statement, Read is not cited in the rejections of claims 1, 6, 10, 15, 19, and 20. Further, Surprenant is not cited in the rejections of claim 6, 15, and 19.

On page 5 of the Office Action dated July 26, 2005, the Examiner states that Cantwell fails to disclose that low-speed cards inter-connected via a data bus in a data plane can be monitored and their operational status can be determined, which seems to be in contradiction with his argument that Cantwell discloses monitoring the operational status for a plurality of cards. (It is noted that claim 1 does not specify that the cards are low-speed cards.)

While confused by the Examiner’s seemingly contradictory arguments, the Applicant would like to point out that Cantwell does not appear to teach of monitoring the operational status for each one of a plurality of cards and each communication link between the plurality of cards. Cantwell appears to teach of monitoring lines such as a DS1 line or an E1 line (Cantwell, column 12 at lines 41-42 and column 13 at line 7). Such lines, however, appear to be within a card and not between cards (Cantwell, column 12 at lines 36-41 and column 13 at lines 1-7). There does not appear to be any teaching or suggestion in Cantwell of monitoring the operational status for communications links between a plurality of cards.

The Examiner argues on page 6 of the Office Action dated July 26, 2005 that Surprenant teaches monitoring the operational status of communications links between low-speed cards and determining when the operational status becomes non-operational. It is respectfully submitted that while Surprenant mentions link monitoring, the link monitoring of Surprenant involves providing information regarding links that may be established such as which cards are connected to which port (Surprenant, column 43 at lines 30-35). Hence, the link monitor of Surprenant identifies links established within a communication system. There is no teaching or suggestion in Surprenant of monitoring an operational status of any links between a plurality of

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cards, or of a link monitor doing anything more than providing information regarding links that may be established such as which cards are connected to which port.

Surprenant discloses fault monitoring, and mentions that fault monitoring provides an independent watchdog service for the overall system (Surprenant, column 38 at lines 11-17). Surprenant also discloses that a fault monitor supervises system operation, and detects and reports faults to a system administrator (Surprenant, column 37 at lines 35-39). However, there is no teaching or suggestion that the fault monitor monitors the operational status for communications links between a plurality of cards. As mentioned above, the link monitor of Surprenant discloses providing information regarding links that may be established (such as which cards are connected to which port). The fault monitor is specifically taught to detect and report faults, but there is no suggestion that faults have anything to do with the operational status for communications links between a plurality of cards. As neither Cantwell nor Surprenant, either alone or in combination, appears to teach or suggest monitoring the operational status of communications links between a plurality of cards, and Barker does not overcome this deficiency of Cantwell and Surprenant, claim 1 and its dependents are each believed to be allowable over the cited art for at least this reason.

Independent claims 10, 20, and 21 recite similar limitations as recited in claim 1, and are therefore believed to be allowable over the art of record for at least the reasons set forth above with respect to claim 1. Claims 12-14 and 18 each depend either directly or indirectly from amended independent claim 10 and are each also believed to be allowable over the art of record for at least the reasons set forth above.

2. *Independent claims 6 and 15 and their respective dependents*

Claims 6 and 15 each recite a limitation of monitoring the operational status for each one of a plurality of cards and for each communications link of a plurality of communications links between the plurality of cards. While the Examiner has indicated on page 2 of the Office Action dated July 26, 2005 that claims 6 and 15 have been rejected under 35 U.S.C. § 103(a) as being

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unpatentable over Cantwell in view of Barker and Surprenant, the Examiner does not explain how Surprenant is applied to claims 6 and 15. In his actual rejections of claims 6 and 15 (pages 7-9 of the Office Action dated July 26, 2005), the Examiner has not made any reference to Surprenant. As the Examiner has only elaborated on his rejections of claims 6 and 15 based on Cantwell and Barker, the Applicant can only address Cantwell and Barker.

The Examiner argues that Cantwell discloses monitoring the operational status for each one of a plurality of cards and each communication link between the plurality of cards. However, the Examiner contradicts himself on page 18 of the Office Action dated July 26, 2005, by explicitly stating that he agrees with the Applicant that Cantwell does not teach monitoring a communication link between cards. The rejection of claims 6, 15, and their dependents is not clear to the Applicant. However, the Applicant respectfully submits that claims 6 and 15 each recite monitoring the operational status of communications links between a plurality of cards. As discussed above with respect to claim 1, Cantwell does not appear to teach or suggest such a limitation. Barker does not overcome this deficiency of Cantwell. Hence, claims 6 and 15 are believed to be allowable for at least this reason.

Claims 7 and 8 depend from independent claim 6, and claims 16 and 17 depend from independent claim 15, and are each believed to be allowable over the art of record for at least the reasons set forth above with respect to claims 6 and 15. Each of these dependent claims recites additional limitations which, when considered in light of claims 6 and 15, as appropriate, are believed to further distinguish the claimed invention over the art of record. For example, claim 7 recites determining when a change in operational status has persisted for at least a predetermined amount of time. The Examiner has argued that Barker teaches such a feature. The Applicant respectfully disagrees. Barker appears to disclose polling a network element at regular intervals to determine if any variables have changed (Barker, column 25 at lines 40-67), and also appears to disclose displaying configuration changes and state changes (Barker, column 28 at lines 20-39). However, there is no teaching or suggesting in Barker of determining when a change in operational status has persisted for at least a predetermined amount of time. Barker fails to disclose or suggest any predetermined amounts of time for which a change in operational status

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persists, and only mentions time in terms of intervals at which polling occurs and amounts of time within which changes are to be displayed. There is no disclosure of even determining an amount of time a change in operational status has persisted. None of the cited art overcomes this deficiency of Barker. Accordingly, claim 7 is believed to be allowable over the cited art for at least this reason as well.

3. *Independent claim 19*

Independent claim 19 recites a method which includes monitoring the operational status for each one of a plurality of cards and each communications link between a plurality of cards, and determining when a non-operational active card or a non-operational active communications link between a plurality of cards requires maintenance. As discussed above with respect to claim 1, Cantwell does not teach of monitoring the operational status of cards and communications links between the cards. Also as discussed above, the Examiner explicitly states that he agrees that Cantwell does not teach monitoring a communication link between cards on page 18 of the Office Action dated July 26, 2005. Hence, it would appear that the Examiner believes that Cantwell does not teach monitoring the operational status for each communications link between cards, though he argues on pages 13 and 14 of the Office Action dated July 26, 2005 that Cantwell teaches such a limitation. It is respectfully submitted that Badt and Read also do not teach monitoring the operational status of a communications link between cards. Accordingly, claim 19 is believed to be allowable over the cited art for at least this reason.

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Conclusion

For at least the foregoing reasons, the Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,



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